COMPUTER APPLICATIONS

Maximum Marks: 100

Time allowed: Two hours

1. *Answers to this Paper must be written on the paper provided separately.*
2. *You will **not** be allowed to write during the first **15** minutes.*
3. *This time is to be spent in reading the question paper.*
4. ***The time given at the head of this Paper is the time allowed for writing the answers.***

5. *This Paper is divided into **two** Sections.*
6. *Attempt **all** questions from **Section A** and **any four** questions from **Section B.***
7. *The intended marks for questions or parts of questions are given in brackets[ ].*

Instruction for the Supervising Examiner

Kindly read aloud the Instructions given above to all the candidates present in the Examination Hall.

This paper consists of 15 printed pages and 1 blank page.

SECTION A (40 Marks)

*(Attempt **all** questions from this **Section**.)*

Question 1 [20]

Choose the correct answers to the questions from the given options.

(Do not copy the questions, write only the correct answers.)

(i) Which of the following ***String methods*** results into ***boolean*** data type?

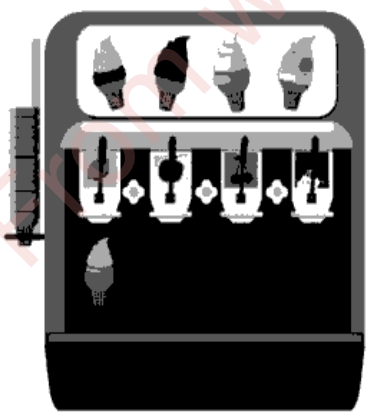
(a) trim()

(b) equals()

(c) replace()

(d) concat()

(ii) Which ***construct*** can be used to get only one of the required ice creams?



(a) switch construct

(b) while construct

(c) do.. while construct

(d) for construct

(iii) Which statement is ***correct*** for the ***method prototype*** given below:

int check(char ch, String s)

(a) check( ) does not return any value

(b) check( ) has return type int

(c) check method has two actual parameters

(d) check( ) is a constructor

(iv) The ***Math method*** which returns ***int*** value is:

(a) round( )

(b) cbrt()

(c) ceil ()

(d) random( )

(v) What is the output of the following statement:

"MONOPOLY".lastIndexOf('O');

(a) 1

(b) 3

(c) 2

(d) 5

(vi) Typecasting is often necessary when dealing with financial data. Identify the correct syntax to ***typecast a double to an int*** using the variables:

int amount; double valueINR

(a) int amount = valueINR;

(b) int amount = Integer.parseInt (valueINR);

(c) int amount = (int) valueINR;

(d) int amount = int (valueINR);

(vii) What is the ***output*** of the code snippet given below?

```
int lives = 5;
System.out.print(lives--);
System.out.print(lives);
```

(a) 4 3

(b) 5 4

(c) 5 3

(d) 4 4

(viii) What will be the ***output*** of the following statement?

```
String s = "JavaProgramming";
System.out.println(s.substring(4, 11).toUpperCase());
```

(a) Programm

(b) PROGRAMM

(c) PROGRAM

(d) program

(ix) Which of the following ***access specifiers*** will make a member accessible ***only*** within its own class?

(a) public

(b) private

(c) protected

(d) default

(x) What will be the ***output*** of the following Java method?

Character.isLetterOrDigit('\n')

(a) 1

(b) 0

(c) true

(d) false

(xi) Which of the following is ***not*** a type of ***token*** in Java?

1.	Method	3.	Literal
2.	Identifier	4.	Keyword

(a) only 1

(b) 1 and 3

(c) only 2

(d) only 4

(xii) The statement given below is termed as:

pubic void Accept(int a)

(a) Method signature

(b) Method block

(c) Method prototype

(d) Constructor

(xiii) What is the ***output*** of the following Java code?

```
boolean flag = false;
if (flag) {
System.out.println("True");
} else {
System.out.println("False");
}
```

(a) True

(b) False

(c) No output

(d) Compilation error

(xiv) Identify the ***static method*** from the list given below:

(a) length( )

(b) nextLine( )

(c) substring(int)

(d) isLetter(char)

(xv) ***String a[]={"Rohini", "Rajarshi", "Rajeev", "Rehan", "Rebecca"};***

System.out.println(a[2].substring(2));

Which one of the following will be the output of the above statements?

(a) jeev

(b) Ra

(c) Raj

(d) je

(xvi) ***System.out.println(Math.round(Math.ceil(-8.8)));*** will result in:

(a) 8.0

(b) –8.0

(c) –9

(d) –8

(xvii) Which one of the following Java statements ***assign 100*** to the ***last*** element of a ***3×3 array***?

(a) x[2][2]=100;

(b) x[3][3]=100;

(c) x[2][3]=100;

(d) x[3][2]=100;

(xviii)

 **Floppy Disk**	 **Pen Drive**	 **DVD**
 **Hard Disk**	 **Storage Tape**	 **Memory card**

Consider the ***Two dimensional array S[2][3]***, of ***storage devices*** given above, state the ***index*** of the ***Hard disk***.

(a) S[1][0]

(b) S[0][1]

(c) S[1][2]

(d) S[0][0]

(xix) How many times the ***for*** statement given below is executed?

for (k = 10; k>=0;k--)

(a) 10

(b) 11

(c) 12

(d) 0

(xx) Consider the following program segment in which the statements are ***jumbled***. Choose the ***correct order*** of the statements to return the ***sum of first 10 natural numbers***.

for(i=1; i<=10; i++) → 1

return sum; → 2

int sum = 0, i; → 3

sum+=i; → 4

(a) 1 2 3 4

(b) 3 4 1 2

(c) 1 4 2 3

(d) 3 1 4 2

Question 2

(i) Write ***Java expression*** for the following: [2]

$x^{10} + y^{10}$

(ii) ***Evaluate*** the given expression when **x = 4** [2]

x* = - - x + x- - + x;

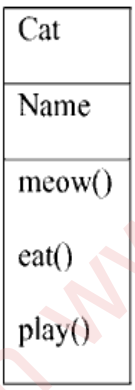
(iii) Convert the following ***switch*** case into ***if else if***: [2]

```
switch(x)
{
case 'T' :
case  't'  : System.out.print("Teacher");  break;
default  :  System.out.print("Student");
}
```

(iv) Write the ***output*** of the following program segment: [2]

```
for( int a=1; a<=10:a++)
{     if(a%2==0)
continue;
System.out.print(a+" ");
}
```

(v) In the example given below of class ***Cat***, identify the ***variable*** and the ***methods***: [2]



(vi) Give the ***output*** of the following program segment and mention ***how many times*** the loop is executed. [2]

```
int k = 100;
while (k>=10)
{
System.out.println(k);
k-=40;
}
```

(vii) Consider the given array and answer the questions given below: [2]

int z[ ] [ ] = { {2, 3, 4}, {5,1,2}, {7, 9, 3}};

(a) What is the ***order*** of the array ***z[ ][ ]***?

(b) What is the value in ***z[2][0]***?

(viii) Give the ***output*** of the following: [2]

(a) ***"ROSE".compareTo("ROJA")***

(b) ***"DEDICATE".replace('D', 'L')***

(ix) Consider the following array and answer the questions given below: [2]

char ch [ ] = { 'A', '%', 'y', '@', '7', 'p'};

(a) How many ***bytes*** does the array occupy?

(b) What is the output of the statement ***Character.isDigit(ch[4])***?

(x) [2]

```
class   perform
{       int  m ;  String name;
perform( int x , String y)
{       m=x;
        name=y;
}
void print ()
{       System.out.print( name+"     "+m);
}
public  static  void  main( )
{       perform  ob1=new perform( 95 , "Xavier");
        ob1.print( );
}
}
```

(a) Give the ***output*** of the code given above.

(b) Name the ***type*** of the ***constructor*** used.

SECTION B (60 Marks)

*(Answer **any four** questions from this **Section**.)*

The answers in this section should consist of the programs in either BlueJ environment or any program environment with Java as the base.

Each program should be written using variable description / mnemonic codes so that the logic of the program is clearly depicted.

Flowcharts and algorithms are not required.

Question 3 [15]

Define a class with following specifications.

class name: ***Hotel***

Member variables:

String name: stores name of customer name

long mobno: stores mobile number

int days: stores number of days customer stayed in hotel

int bill: stores customer bill

Member method:

void input () – input values using Scanner class methods only

void charge( ) – calculate bill as per the following criteria

days	**charge/day**
first 3 days	1000 Rs/ day
next 4 days	900 Rs/day
> 7 days	800 Rs/day

bill = bill + gst (18% of bill)

void print( )- Display customer name, mobile number and bill.

Invoke all the above methods in ***main method*** with the help of an object.

Question 4 [15]

Define a ***class*** to accept values into a 3x3 integer array and print the ***product of each row*** elements.

Example:

3	1	2
4	2	1
5	1	2

Output:

Row 0 – 6

Row 1 – 8

Row 2 – 10

Question 5 [15]

Define a ***class*** to ***overload*** the method ***transform*** as follows:

int transform(int n) –	to return the sum of the digits of the given number
Example: n = 458	output : 17
void transform(String s) –	to convert the given String to upper case and print
Example: if S = "Blue"	Output : BLUE
void transform (char ch) –	to print the character ch in ***3 rows*** and ***3 columns*** using nested loops.
Example: if ch = '@'	Output : @@@ @@@ @@@

Question 6 [15]

Define a ***class*** to accept a string. Check if it is a ***Special String*** or not.

A String is Special if the ***number of vowels equals to the number of consonants***.

Example: MINE

Number of vowels = 2

Number of Consonants = 2

Question 7 [15]

Define a ***class*** to accept a number and check if the sum of the ***first digit*** and the ***last digit*** is an ***even number*** or an ***odd number***.

Example:	N = 2396	N = 9316
First digit:	2	9
Last digit:	6	6
Sum:	8	15
Output:	Sum is even	Sum is odd

Question 8 [15]

Define a ***class*** to accept 10 integers in an array, search for the given value using the ***Linear Search technique*** and print appropriate messages.